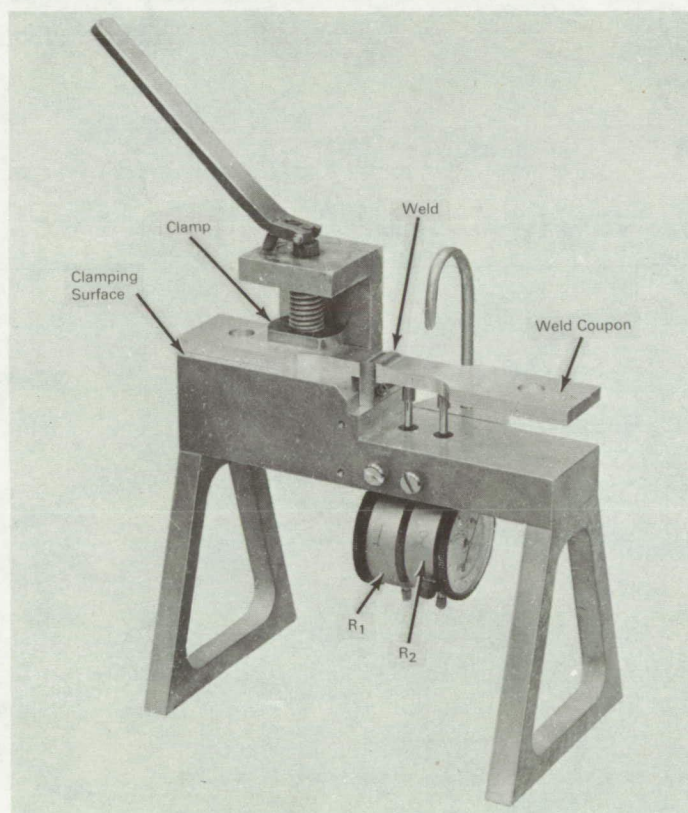


NASA TECH BRIEF



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Instrument Accurately Measures Weld Angle and Offset



The problem:

In welding, misalignment can result from one member being welded to the other at an angle, with an offset, or both at an angle and with an offset. To correlate the effect of this angle and offset on the tensile strength of welded structures, it is necessary to be able to accurately measure these variables. In the past they have been either estimated or only roughly measured.

The solution:

An instrument designed to measure offset from a reference plane at two locations on a test coupon. These measurements are then used to determine weld angles to the nearest arc minute and weld offset to the nearest one thousandth of an inch. Dial indicators R₁ and R₂ are set to zero with reference to the instrument's clamping surface.

(continued overleaf)

How it's done:

A welded tensile coupon is positioned on the instrument as shown with the center of the weld at the center of the instrument and positioned so that the reading of R_1 is equal to or less than the reading of R_2 . Readings of R_1 and R_2 are noted and recorded. The angle and offset of the weld is then computed trigonometrically.

Notes:

1. To simplify the computation of angle and offset data, a special table has been prepared for use with the instrument.

2. Inquiries concerning this invention may be directed to:

Technology Utilization Officer
Marshall Space Flight Center
Huntsville, Alabama 35812
Reference: B67-10563

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

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